

ABSTRACT

A system and method determine the spatial distribution of magnetic particles in an examination area of an object by: (a) generating an imaging magnetic field with a spatial distribution of the magnetic field strength such that the examination area consists of a first sub-area with lower magnetic field strength and a second sub-area with a higher magnetic field strength; (b) changing the spatial location of both sub-areas in the examination area so that the magnetization of the particles changes locally; (c) acquiring signals that depend on the magnetization in the examination area influenced by this change, and (d) evaluating the signals to determine the spatial distribution of the signals in the examination area, wherein the magnetic particles before or during the determining of the spatial distribution of the magnetic particles in the examination area are exposed to a varying magnetic field at least some of the time.